

AMENDMENTS TO THE CLAIMS

Claims 1-3 (Cancelled)

4. (Currently Amended) The imager of claim 3 5 wherein the second semiconductor region includes silicon.

5. (Currently Amended) ~~The imager of claim 3 wherein~~ An imager comprising:

a first region of semiconductor material, the first region of semiconductor material having a first conductivity type, the first semiconductor region is being free of germanium;

a second region of semiconductor material located on the first region of semiconductor material, the second region of semiconductor material having a second conductivity type, the second semiconductor region being free of germanium; and

a third region of semiconductor material located on the second region of semiconductor material, the third region of semiconductor material including silicon and germanium and having the second conductivity type.

6. (Original) The imager of claim 5 wherein the first and second semiconductor regions include silicon.

7. (Currently Amended) ~~The imager of claim 2 and further comprising~~ An imager comprising:

a first region of semiconductor material, the first region of semiconductor material having a first conductivity type;

a second region of semiconductor material located on the first region of semiconductor material, the second region of semiconductor material having a second conductivity type;

a third region of semiconductor material located on the second region of semiconductor material, the third region of semiconductor material including silicon and germanium and having the second conductivity type; and

a fourth region of semiconductor material located on the third region of semiconductor material, the fourth region of semiconductor material having the second conductivity type and being free of germanium.

8. (Original) The imager of claim 7 wherein the second semiconductor region is free of germanium.

9. (Original) The imager of claim 8 wherein the second and fourth regions of semiconductor material include silicon.

10. (Original) The imager of claim 7 wherein the fourth region of semiconductor material has a greater dopant concentration than the second region of semiconductor material.

11. (Currently Amended) ~~The imager of claim 7 and further comprising:~~ An imager comprising:

a first region of semiconductor material, the first region of semiconductor material having a first conductivity type;

a second region of semiconductor material located on the first region of semiconductor material, the second region of semiconductor material having a second conductivity type;

a third region of semiconductor material located on the second region of semiconductor material, the third region of semiconductor material including silicon and germanium and having the second conductivity type;

a fourth region of semiconductor material located on the third region of semiconductor material, the fourth region of semiconductor material having the second conductivity type and being free of germanium;

a fifth region of semiconductor material located on the fourth region of semiconductor material, the fifth region of semiconductor material having the first conductivity type;

a sixth region of semiconductor material located on the fifth region of semiconductor material, the fifth region of semiconductor material having the second conductivity type; and

a seventh region of semiconductor material located on the sixth region of semiconductor material, the seventh region of semiconductor material including silicon and germanium and having the second conductivity type.

12. (Original) The imager of claim 11 wherein the second and sixth semiconductor regions are free of germanium.

13. (Original) The imager of claim 12 wherein the second and sixth semiconductor regions include silicon.

14. (Original) The imager of claim 12 wherein the first and fifth semiconductor regions are free of germanium.

15. (Original) The imager of claim 14 wherein the first, second, fifth, and sixth semiconductor regions include silicon.

16. (Original) The imager of claim 11 and further comprising an eighth region of semiconductor material located on the seventh region of semiconductor material, the eighth region of semiconductor material having the second conductivity type and being free of germanium.

17. (Cancelled)

18. (Currently Amended) ~~The method of claim 17 and further comprising the step of~~ A method of forming an imager, the method comprising the steps of:

forming a first region of semiconductor material, the first region of semiconductor material having a first conductivity type and being free of germanium; and

forming a second region of semiconductor material on the first region of semiconductor material, the second region of semiconductor material having a second conductivity type and being free of germanium; and

forming a third region of semiconductor material on the second region of semiconductor material, the third region of semiconductor material including silicon and germanium and having the second conductivity type.

19. (Currently Amended) ~~The method of claim 18 wherein the second semiconductor region is free of germanium, and~~ includes silicon.

20. (Currently Amended) ~~The method of claim 19~~ 18 and further comprising the step of forming a fourth region of semiconductor material on the third region of semiconductor material, the fourth region of semiconductor material having the second conductivity type and a greater dopant concentration than the third region, and being free of germanium.

21. (New) The imager of claim 5 and further comprising:
a conductive region that contacts the first region of semiconductor material;
and

a first isolation region that contacts the second and third regions of semiconductor material and the conductive region to isolate the second and third regions of semiconductor material from the conductive region.

22. (New) The imager of claim 21 and further comprising:
a plurality of layers of semiconductor material formed over the third region of semiconductor material, the plurality of layers of semiconductor material including a first layer having the first conductivity type and a second layer having the second conductivity type, the first layer contacting the conductive region;

a second isolation region that contacts the plurality of layers of semiconductor material and the conductive region to isolate layers with the second conductivity type from the conductive region.

23. (New) The imager of claim 7 and further comprising:
a first plurality of layers of semiconductor material formed over the fourth region of semiconductor material, the plurality of layers of semiconductor material including a first layer having the first conductivity type and a second layer having the second conductivity type;

a conductive region that contacts the fourth region of semiconductor material;
and

an isolation region that contacts the first plurality of layers of semiconductor material and the conductive region to isolate the first plurality of layers of semiconductor material from the conductive region.

24. (New) The imager of claim 23 and further comprising a second plurality of layers of semiconductor material formed over the first plurality of layers of semiconductor material, the second plurality of layers of semiconductor material including a first layer having the first conductivity type and a second layer having the second conductivity type, the isolation region isolating the conductive region from the second plurality of layers of semiconductor material.